

Method and apparatus for photomixing

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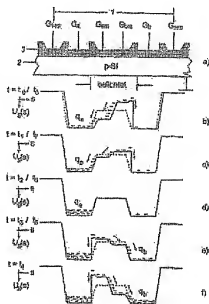
JP4060385 (B2)
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Abstract not available for JP 2000517427 (T)

Abstract of corresponding document: US 6825455 (B1)

A method and corresponding device for determining the phase- and/or amplitude data of an electromagnetic wave. In order to bring about the spatial depth resolution of the image data obtained, the method according to the invention comprises the following steps: an electromagnetic wave is beamed onto the surface of a photonic mixed element comprising at least one pixel, the pixel having at least two light-sensitive modulation light gates Gem and Gbm and associated accumulation gates Ga and Gb; modulation light gate voltages U_{em}(t) and U_{bm}(t), which are configured as U_{em}(t)=U_o+U_m(t) and U_{bm}(t)=U_o-U_m(t), are applied to the modulation light gates Gem and Gbm; a direct voltage, whose magnitude is at least the same as that of the total of U_o and the amplitude of the modulation voltage U_m(t), is applied to the accumulation gates Ga and Gb; the charge carriers produced in the space charge region of the modulation light gates Gem and Gbm by the incident electromagnetic wave are subjected, as a function of the polarity of the modulation light gate voltages U_{em}(t) and U_{bm}(t), to the potential gradient of a drift field and drift to the corresponding accumulation gate Ga or Gb; and the charges qa and qb which have drifted to the accumulation gates Ga and Gb, respectively, are diverted. The corresponding photonic mixed element has at least one pixel which comprises at least two light-sensitive modulation light gates (Gem, Gbm) and accumulation gates (Ga, Gb) which are associated with the modulation light gates and are partitioned with respect to the incident electromagnetic wave. A plurality of photonic mixed elements can be assembled to form an array.



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